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CASE REPORT

An Iranian Woman with Parathyroid Adenoma and Palpable Breast Masses Due to Bilateral and Asymmetric Calcifications

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Background

Most common cause of primary hyperparathyroidism is parathyroid adenoma that includes 85% of cases [1]. Hyperparathyroidism has 3 types including primary, secondary, and tertiary. Adenoma and glandular hyperplasia are primary causes. Secondary means increase in parathyroid hormone levels that depends on hypocalcemia in many conditions like chronic renal failure. Tertiary occurs in chronic stimulation of parathyroid glands [2]. The third most common endocrinopathy disease in adults is primary form of hyperparathyroidism [3]. In women, incidence of primary type is 1 in 500 and in men, incidence is 1 in 2000 [4]. The incidence of adenoma peaks in seventh decade especially in women but incidence is similar in men and women before 45 years of age [5]. Head and neck irradiation in childhood and long-term lithium therapy are predisposing factors that associates with adenoma [5]. The most common clinical manifestation of parathyroid adenoma is asymptomatic hypercalcemia but skeletal manifestation can be a primary presentation in developing countries. Bone disease is described as Osteitis Fibrosa Cystica (OFC), salt-and-pepper appearance in skull, bone erosion, and brown tumors [3]. Adenoma can secrete large amount of parathyroid hormone which increase calcium levels [6]. Hypercalcemia has symptoms and signs of organ dysfunction such as nephrolithiasis, pathologic fractures, and gastrointestinal manifestation including pancreatitis and neurocognitive dysfunction [7].

Calcification occurs in malignant or benign lesion that involves soft tissues. Depending on the location of calcification, it can be malignant or benign. Calcification in the viscera is divided into two groups. Metastatic form with hypercalcemia that occurs with calcium deposits in normal tissue and dystrophic type that forms in damaged tissue [8]. Dystrophic form in injured tissue is accompanied by normal serum calcium such as hydatid cyst. Metastatic form is categorized into malignant and non-malignant types. Malignant type is reported in some cancers such as parathyroid carcinoma, multiple myeloma, lymphoma, leukemia, and breast cancer. Chronic renal failure is most common form of benign metastatic calcification. Other etiologies are hyperparathyroidism and hypervitaminosis D [8–11].

Breast tissue is one of the important organs that calcification occurs in it. Microcalcification in the breast was described as calcium deposits. It has three types of compositions that include hydroxyapatite, calcium oxalate, and calcium carbonate. Calcium oxalate composition is more common in benign lesion and lobular carcinoma in situ. Malignant lesion is composed of hydroxyapatite and calcium carbonate is common in benign lesions [12].

The most common form of calcification in the breast is a microscopy or microcalcification that detected by mammography. Breast calcification is a finding in mammography and has different causes. Specific pattern of calcification associated with positive predictive value of cancers [13]. Calcification separated into benign, intermediate, and high suspicious to malignancy [14].

Breast calcification due to hyperparathyroidism and associated hypercalcemia is a less common event. Most of the time, it is found as incidental findings in breast tissue, and in other cases, in breast imaging studies. However, based on our literature review, occurrence of breast mass as initial clinical presentation of breast calcification due to hyperparathyroidism and associated hypercalcemia is very rare [12]. Therefore,

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